TS-RDM1

USB2.0 Portable Multi-Card Reader

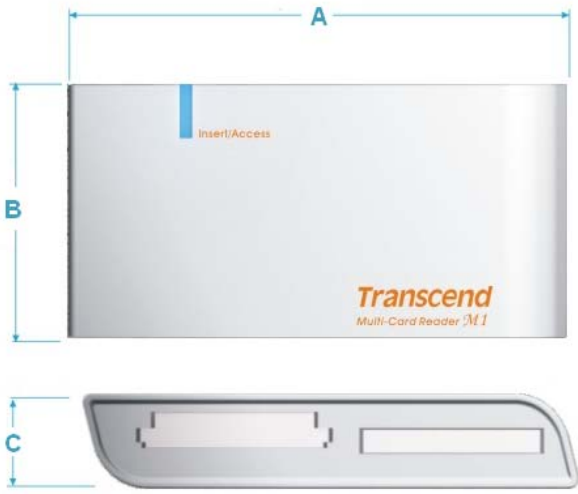
Description

TS-RDM1 is a USB2.0 Portable Multi-Card Reader. It is a small device specifically designed for fast, easy data transfer and exchange using multiple types of Memory Cards: **Secure Digital (SD™)**, **Secure Digital High Capacity (SDHC™)**, **miniSD™**, **miniSDHC™**, **MultiMediaCard (MMC™)**, **MMCplus™**, **RS-MMC**, **MMCmobile™**, **Memory Stick® (MS)**, **Memory Stick PRO™**, **Memory Stick Duo™**, and **Memory Stick PRO Duo™**. In addition the Reader supports **microSD™, MMCmicro™** and **Memory Stick Micro™ (M2)** Memory Cards, when combined with their adapter.

Features

- Fully Compliant with the Hi-Speed USB 2.0 specification
- Hi-Speed Data transfer rates of up to 480Mb/s
- USB powered (no external power or battery needed)
- Supports many different types of Memory Cards without the need for an adapter :
  - **Secure Digital Card (SD™)**
  - **Secure Digital High Capacity (SDHC™)**
  - **miniSD™**
  - **miniSDHC™**
  - **MultiMediaCard (MMC™)**
  - **MMCplus™**
  - **RS-MMC**
  - **MMCmobile™**
  - **Memory Stick® (MS)**
  - **Memory Stick PRO™**,
  - **Memory Stick Duo™**
  - **Memory Stick PRO Duo™**.
- Supports additional Memory Cards with an adapter
  - **microSD™**
  - **MMCmicro™**
  - **Memory Stick Micro™ (M2)**
- LED indicates card insertion and data traffic

Placement



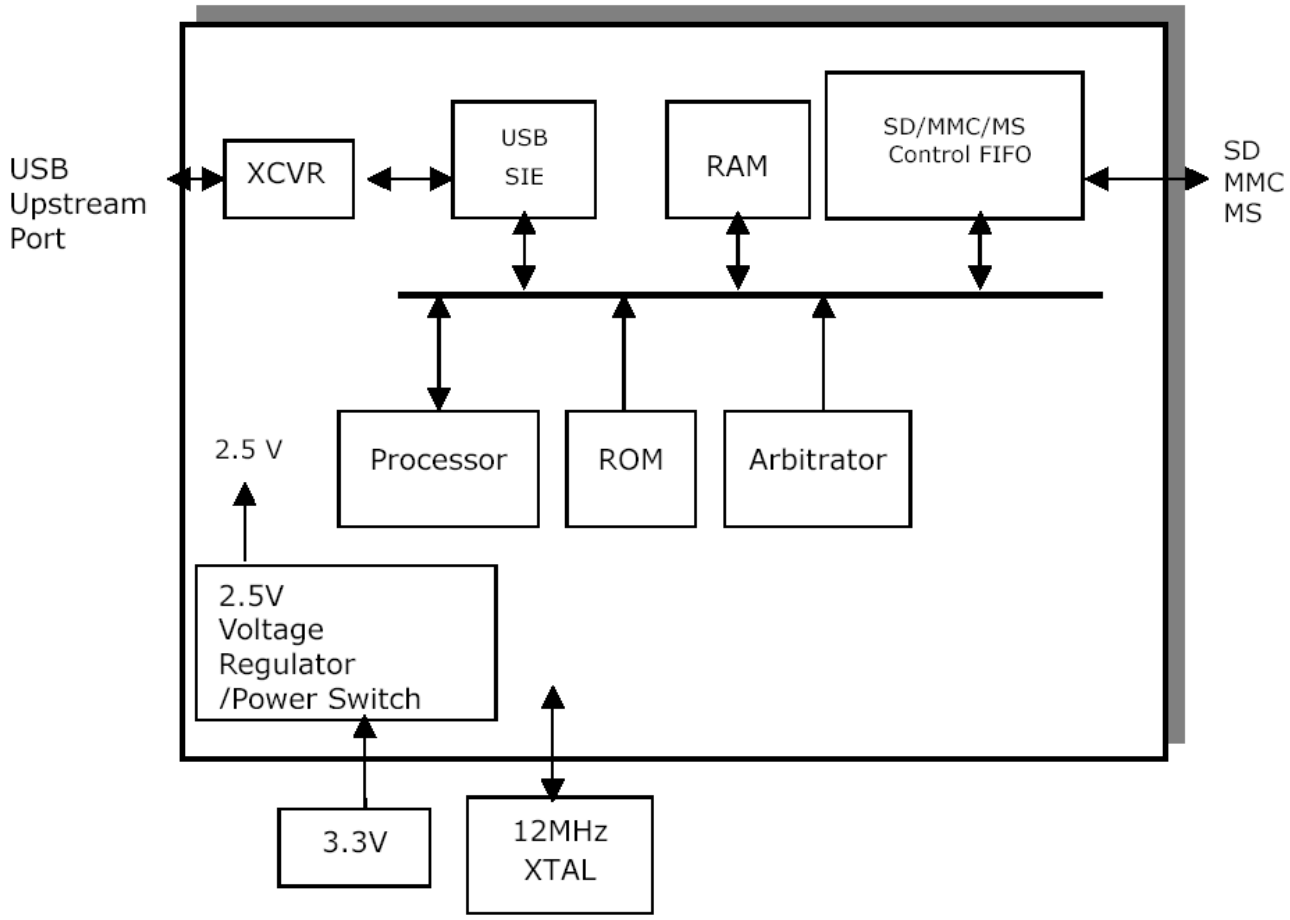
Dimensions

Side	Millimeters	Inches
A	64.00 ± 1.0	2.33 ± 0.04
B	33.00 ± 1.0	1.30 ± 0.04
C	12.00 ± 1.0	0.47 ± 0.04

System Requirements

- Desktop or notebook computer with a working USB port
- One of the following Operating Systems:
  - Windows® 2000
  - Windows® Me
  - Windows® XP
  - Mac™ OS 9.0, or later
  - Linux™ Kernel 2.4.2, or later

Block Diagram



Pinouts

Pin No.	Pin Name
01	VCC
02	USB-
03	USB+
04	NC
05	VSS

Pin Identification

Symbol	Function
VCC	USB Power Input
USB- USB+	USB differential signal: The pairs are used to transmit Data/Address/Command
NC	Not Connect
VSS	Ground

Absolute Maximum Ratings

SYMBOL	PARAMETER	RATING	UNITS
V_{CC}	Power Supply	-0.3 to V_{CC}+0.3	V
V_{IN}	Input Voltage	-0.3 to 3.6	V
V_{OUT}	Output Voltage	-0.3 to V_{CC}+0.3	V
T_{STG}	Storage Temperature	-40 to 150	^{O}C

Recommended Operating Conditions

SYMBOL	PARAMETER	MIN	TYP	MAX	UNITS
V_{CC}	Power Supply	3.0	3.3	3.6	V
V_{DD}	Digital Supply	2.25	2.5	2.75	V
V_{IN}	Input Voltage	0	3.3	5.2	V
T_{OPR}	Operating Temperature	0	25	125	^{O}C

Card Power Output Current Range

SYMBOL	PARAMETER	MIN	TYP	MAX	UNITS
SD_VCC	Output Voltage for SD Card Power	3.0	3.3	3.6	V
MS_VCC	Output Voltage for MS Card Power	3.0	3.3	3.6	V
I_{SD}	Output Current for SD Card			100	mA
I_{MS}	Output Current for MS Card			100	mA

DC Characteristics

SYMBOL	PARAMETER	CONDITIONS	Limits			UNIT
			MIN	TYP	MAX	
V_{CC}	Power supply	3.3V I/O	3.0	3.3	3.6	V
V_{il}	Input low voltage	LVTTL			0.8	V
V_{ih}	Input high voltage		2.0			V
V_{ol}	Output low voltage	$\lvert I_{ol} \rvert$ =2~16mA			0.4	V
V_{oh}	Output high voltage	$\lvert I_{oh} \rvert$ =2~16mA	2.4			V
R_{pu}	Input pull-up resistance	PU=high, PD=low	40	75	190	KΩ
R_{pd}	Input pull-down resistance	PU=low, PD=high	40	75	190	KΩ
I_{in}	Input leakage current	V_{in}= V_{CC} or 0	-10	±1	10	μA
I_{oz}	Tri-state output leakage current		-10	±1	10	μA

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